

**Reading:** Friedland 09 (Bornhuetter-Ferguson Method)  
**Model:** 2019.Spring #19  
**Problem Type:** Reserving Methods - BF with Tort Reform

F-09 (020) BF with Tort Reform (Problem 1)

**Find** Calculate the ultimate for AY 2025 using:

- (i) reported development method
- (ii) reported Bornhuetter-Ferguson method

**Given** Data is for CY/AY 2024 as of Dec 31, 2024

EP	3,500
ECR	70%
reported loss @ 12 months	1,890
reported CDF for 12-ult	2.500
paid loss @ 12 months	790

Tort reform is passed on Dec 31, 2024 causing an expected 10% reduction on future claim payments.

## (i) reported development method

Step 1 reported development estimate without tort reform adjustment

$$\begin{aligned}
 &= \text{rptd loss} \quad \times \quad \text{CDF} \\
 &= 1,890 \quad \times \quad 2.500 \\
 &= 4,725
 \end{aligned}$$

Step 2 unpaid claims (*need this because we make the tort reform adjustment only to unpaid claims*)

$$\begin{aligned}
 &= \text{ultimate} \quad - \quad \text{paid loss} \\
 &= 4,725 \quad - \quad 790 \\
 &= 3,935
 \end{aligned}$$

Step 3 adjust unpaid loss downward by:

10%

adjusted unpaid loss

$$\begin{aligned}
 &= 3,935 \quad \times \quad 90\% \\
 &= 3,542
 \end{aligned}$$

Step 4 adjusted ultimate

$$\begin{aligned}
 &= \text{adjusted unpaid loss} \quad + \quad \text{paid loss} \\
 &= 3,542 \quad + \quad 790 \\
 &= 4,332 \quad \text{<== final answer}
 \end{aligned}$$

## (ii) reported Bornhuetter-Ferguson method

\* Steps 2,3,4 are the same as for part (i)

Step 1a ECR method estimate without tort reform adjustment

$$\begin{aligned}
 &= \text{ECR} \quad \times \quad \text{EP} \\
 &= 70\% \quad + \quad 3,500 \\
 &= 2,450
 \end{aligned}$$

Step 1b BF method estimate without tort reform adjustment

$$\begin{aligned}
 &= \text{rptd loss} \quad + \quad (1 - 1/\text{CDF}) \quad \times \quad \text{ECR ult} \\
 &= 1,890 \quad + \quad 0.600 \quad \times \quad 2,450 \\
 &= 3,360
 \end{aligned}$$

Step 2 unpaid claims (*need this because we make the tort reform adjustment only to unpaid claims*)

$$\begin{aligned}
 &= \text{ultimate} \quad - \quad \text{paid loss} \\
 &= 3,360 \quad - \quad 790 \\
 &= 2,570
 \end{aligned}$$

Step 3 adjust unpaid loss downward by:

10%

adjusted unpaid loss

$$\begin{aligned}
 &= 2,570 \quad \times \quad 90\% \\
 &= 2,313
 \end{aligned}$$

Step 4 adjusted ultimate

$$\begin{aligned}
 &= \text{adjusted unpaid loss} \quad + \quad \text{paid loss} \\
 &= 2,313 \quad + \quad 790 \\
 &= 3,103 \quad \text{<== final answer}
 \end{aligned}$$

practice 2

**Reading:** Friedland 09 (Bornhuetter-Ferguson Method)  
**Model:** 2019.Spring #19  
**Problem Type:** Reserving Methods - BF with Tort Reform

**Find** Calculate the ultimate for AY 2025 using:

- (i) reported development method
- (ii) reported Bornhuetter-Ferguson method

**Given** Data is for CY/AY 2024 as of Dec 31, 2024

EP	7,800
ECR	81%
reported loss @ 12 months	3,510
reported CDF for 12-ult	2.400
paid loss @ 12 months	2,000

Tort reform is passed on Dec 31, 2024 causing an expected 25% reduction on future claim payments.

## (i) reported development method

Step 1 reported development estimate without tort reform adjustment

$$\begin{aligned}
 &= \text{rptd loss} \times \text{CDF} \\
 &= 3,510 \times 2.400 \\
 &= 8,424
 \end{aligned}$$

Step 2 unpaid claims (need this because we make the tort reform adjustment only to unpaid claims)

$$\begin{aligned}
 &= \text{ultimate} - \text{paid loss} \\
 &= 8,424 - 2,000 \\
 &= 6,424
 \end{aligned}$$

Step 3 adjust unpaid loss downward by:  
adjusted unpaid loss

25%

$$\begin{aligned}
 &= 6,424 \times 75\% \\
 &= 4,818
 \end{aligned}$$

Step 4 adjusted ultimate

$$\begin{aligned}
 &= \text{adjusted unpaid loss} + \text{paid loss} \\
 &= 4,818 + 2,000 \\
 &= 6,818 \quad \text{<== final answer}
 \end{aligned}$$

## (ii) reported Bornhuetter-Ferguson method

*\* Steps 2,3,4 are the same as for part (i)*

Step 1a ECR method estimate without tort reform adjustment

$$\begin{aligned}
 &= \text{ECR} \times \text{EP} \\
 &= 81\% \times 7,800 \\
 &= 6,318
 \end{aligned}$$

Step 1b BF method estimate without tort reform adjustment

$$\begin{aligned}
 &= \text{rptd loss} + (1 - 1/\text{CDF}) \times \text{ECR ult} \\
 &= 3,510 + 0.583 \times 6,318 \\
 &= 7,196
 \end{aligned}$$

Step 2 unpaid claims (need this because we make the tort reform adjustment only to unpaid claims)

$$\begin{aligned}
 &= \text{ultimate} - \text{paid loss} \\
 &= 7,196 - 2,000 \\
 &= 5,196
 \end{aligned}$$

Step 3 adjust unpaid loss downward by:  
adjusted unpaid loss

25%

$$\begin{aligned}
 &= 5,196 \times 75\% \\
 &= 3,897
 \end{aligned}$$

Step 4 adjusted ultimate

$$\begin{aligned}
 &= \text{adjusted unpaid loss} + \text{paid loss} \\
 &= 3,897 + 2,000 \\
 &= 5,897 \quad \text{<== final answer}
 \end{aligned}$$